UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/673,381	09/26/2003	Bharat T. Doshi	Doshi 56-5-21-17-33	8412

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EXAMINER
CLOUD, JOIYA M

ART UNIT	PAPER NUMBER
2144	

MAIL DATE	DELIVERY MODE
08/24/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/673,381	BHARAT T. DOSHI
	Examiner	Art Unit	
	Joiya M. Cloud	2144	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>26 September 2003</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-20</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-20</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>26 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>See Continuation Sheet</u>.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :09/26/2003,11/21/2005,7/31/2006,5/16/2007.

DETAILED ACTION

1.   This action is responsive to the application filed on September 26, 2003. Claims 1-20

represent Calculation, representation, and maintanence of sharing information in mesh netowrks.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 09/26/2003;

07/31/2006; is in compliance with the provisions of 37 CFI~ 1.97. Accordingly, the information

disclosure statement is being considered by the examiner.

Specification

3.   The disclosure is objected to because of the following informalities: On the

page 1, under section "Cross-Reference to Related Applications", the cited copending

applications should be updated with current statuses such as U.S.Patent Application Serial No.,

the filing date, U.S. Patent No., and the issued date. Appropriate correction is required.

4.   *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5.   **Claims 1-6, 12, and 16-20**, are rejected under 35 U.S.C. 102(b) as being anticipated by

Lin (U.S. Publication No. A1, hereinafter Lin).

As per claim 1, Lin teaches comprising: representing, in a network data structure,

information associated with a mesh network having a plurality of nodes interconnected by a

plurality of links **(Abstract, paragraph [0005], [0016], Figures 5 and 6)**, wherein the network

data structure comprises, for each link in the network and each node or other link in the network,

a representation of a minimum amount of protection bandwidth required to be reserved on said

each link to restore service upon failure of said node or other link **(paragraph [0035], Figure 6,**

item 630); receiving a request for a new service in the network, wherein the new service is

represented by a service data structure comprising an identification of each link and transit node

in a primary path for the new service **(paragraphs [0049], [0050], new connection link**

(request), [0067], [0068], [0029], [0063] and paragraphs [0034], [0007], where the primary

path is determined); determining, using the network and service data structures, whether the

new service requires additional protection bandwidth to be reserved on any link in the network

(paragraph [0035], Figure 6, item 630); and updating the network data structure if any

additional protection bandwidth is determined to be required for the new service **(Figure 3, item**

331, increasing to match bandwidth requirement).

As per claim 2, Lin teaches wherein the service data structure further comprises an

identification of bandwidth associated with the new service **(new connection link request**

paragraphs [0049], [0050]).

As per claim 3, Lin teaches wherein the network is a virtual-circuit mesh data network

that transmits packetized data **(paragraph [0062], lines1-5)**.

As per claims 4 and 5, Lin wherein the network data structure is distributed over the

network such that at least one node in the network does not have all of the information in the

network data structure and wherein each of the nodes in the network has all of the information in

the network data structure **(paragraph [0061]).**

As per claim 6, further comprising, in response to the new service request, determining a

restoration path for the new service in the network using the network data structure **(paragraph**

[0050], [0051] and Figure 6).

As per claim 12 and 16, Lin teaches wherein an incremental version of the network data

structure is used to reduce the amount of data that is transmitted in the network to disseminate

the information; and wherein a compact version of the network data structure is used to reduce

the amount of data that needs to be transmitted in the network to disseminate the information

about each link **(paragraph [0063]).**

As per claims 17-19, claims 17-19 lists substantially the same elements as claim 1 and is

thus rejected using the same rationale.

As per claim 20, Lin teaches wherein a compact version of the network data structure is

used to reduce the amount of data that needs to be transmitted in the network to disseminate the

information about each link **(paragraph [0063]).**

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set
forth in section 102 of this title, if the differences between the subject matter sought to be patented and
the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   **Claims 7-** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of

Voelker **(U.S. Patent No. 5,856,981, hereinafter Voelker).**

As per claim 7-11 and 13-15, Lin discloses the invention substantially as claimed.

However, Lin does not explicitly teach wherein the network data structure is an array of vectors,

wherein: each vector in the array corresponds to a different link in the network; each vector in

the array has a plurality of entries corresponding to the nodes and links in the network; for a first

vector corresponding to a first link, each entry in the first vector corresponding to a node or other

link identifies the minimum amount of protection bandwidth required to be reserved on the first

link to restore service upon failure of the node or other link; and the service data structure is a

primary path vector having a plurality of entries corresponding to the nodes and links in the

network, and wherein each entry of the primary path vector identifies whether the corresponding

node or link is part of the primary path for the new service.

Voelker teaches wherein the network data structure is an array of vectors, wherein: each

vector in the array corresponds to a different link in the network; each vector in the array has a

plurality of entries corresponding to the nodes and links in the network **(col. 7, lines 50-55)**; for a

first vector corresponding to a first link, each entry in the first vector corresponding to a node or

other link identifies the minimum amount of protection bandwidth required to be reserved on the

first link to restore service upon failure of the node or other link **(col. 7, lines 56-63)**; and the

service data structure is a primary path vector having a plurality of entries corresponding to the

nodes and links in the network, wherein: each entry of the primary path vector identifies whether

the corresponding node or link is part of the primary path for the new service **(col. 6, lines 43-51, col. 6, lines 56-59)**.

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporate Lin's teachings to the teachings of Voelker, for the purpose of having a series of entries representing link when a contingent connection is established path calculations assure "an adequate reserve capacity for establishing...the connection on that link" **(col. 7, lines 18-25)**. Furthermore, to provide data pertinent to the operations of the node **(col. 6, lines 22-27)**.

As per claim 8, Lin teaches wherein determining whether the new service requires any additional protection bandwidth to be reserved on a link A in the network comprises applying a vector addition operation between the primary path vector corresponding to the new service request and the vector of the array corresponding to the link A to form a result vector, and comparing the maximum value in the result vector with the bandwidth already reserved on the link A to determine whether any additional protection bandwidth is required for the new service **(col. 7, lines 50-64, col. 8, lines 1-18, col. 8, lines 45-63)**.

As per claim 9, Lin teaches wherein the additional protection bandwidth is required and is reserved if any result vector entry is greater than the bandwidth already reserved on the link **(col. 5, lines 32-37)**.

As per claim 10, Lin teaches wherein the vector addition operation is applied between the primary path vector and each vector in the array corresponding to each different link in a restoration path for the new service **(col. 7, lines 12-25)**.

As per claim 11, Lin teaches wherein the service data structure is primary path node-link vector V.sub.pnl (col. 10, lines 12-27).

As per claim 13-15, Lin teaches wherein transmission control protocol/Internet protocol (TCP/IP) connections are used for the dissemination; wherein the compact representation is a node aggregate vector V.sub.na wherein each element of V.sub.na corresponds to a node in the network wherein the element's value is a function of the maximum of reservation bandwidths reserved on all links incident to the node and wherein the dissemination is accomplished using a link-state routing protocol (col. 8, lines 3-18, col. 10, lines 12-27, and col. 8, lines 45-50).

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joiya Cloud whose telephone number is 571-270-1146. The

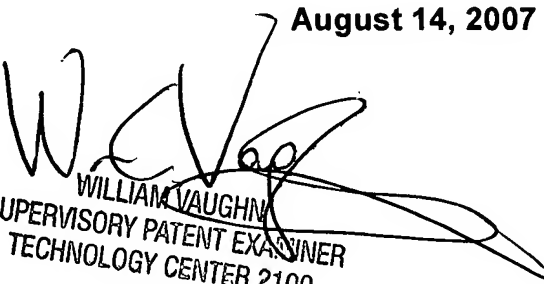examiner can normally be reached Monday to Friday from on 7:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, William Vaughn can be reached on 571-272-3922. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-3922.   Information

regarding the status of an application may be obtained from the Patent Application Information

Retrieval (PAIR) system. Status information for published applications may be obtained from

either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the

Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JMC

William 𝓛 Vaughn

Supervisory Patent Examiner   **August 14, 2007**